



Smallholders adaptation to climate change in Mali

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Abstract:

This study was undertaken to assess the potential impacts of climate change on agriculture in the Sikasso region of southern Mali, as part of an effort by the U.S. Agency for International Development (USAID) to integrate climate change adaptation considerations into their development projects. The region is considered to be the breadbasket of Mali, providing a substantial amount of the country's food supplies as well as cotton for exchange earnings. The project had two components: modeling how climate change could affect production of cereal and cash crops in southern Mali; and conducting a stakeholder-driven vulnerability and adaptation assessment to identify potential options for addressing current and projected risks to agriculture from climate change. Projected changes in crop yields were based on a previous analysis that was extended for the purposes of this study. The projections suggested that the sensitivity of maize to changing weather conditions is relatively small (generally less than 10% change) under both dry and wet scenarios in 2030 and 2060. White (Irish) potatoes, the primary cash crop, are the most sensitive to changing weather conditions, with yields decreasing under both dry and wet conditions; yields could decrease by about 25% by 2060. Stakeholder workshops, field interviews, and an expert analysis were used to assess current and future climate-related vulnerability and to identify potential adaptation options. The main focus of the assessment was farmers in a village of about 3,000 people in the Sikasso region that practiced a rice-potato rotation system typical to the region. The farmers emphasized adaptation measures that require outside financial and technical assistance, for example installation of a water gate that would retain more water in the inland valley and increase the water table to flood rice fields during the rainy season and for furrow irrigation of potatoes during the dry season. Adaptations emphasized by both the farmers and representatives of regional technical services were crop diversification and germplasm improvement; soil and water management; access to equipment (plows, carts, oxen, and improved stoves); credit stockage villageois (CSV); and fertilizer.

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Resource Description

Climate Scenario :

specification of climate scenario (set of assumptions about future states related to climate)

Special Report on Emissions Scenarios (SRES), Other Climate Scenario

Special Report on Emissions Scenarios (SRES) Scenario: SRES A1

Other Climate Scenario: A1B;HadCM2

Climate Change and Human Health Literature Portal

Communication:

resource focus on research or methods on how to communicate or frame issues on climate change;
surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience:

audience to whom the resource is directed

Public

Exposure :

weather or climate related pathway by which climate change affects health

Food/Water Security

Food/Water Security: Agricultural Productivity

Geographic Feature:

resource focuses on specific type of geography

Rural

Geographic Location:

resource focuses on specific location

Non-United States

Non-United States: Africa

African Region/Country: African Country

Other African Country: Mali

Health Impact:

specification of health effect or disease related to climate change exposure

Health Outcome Unspecified

Intervention:

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation

Model/Methodology:

type of model used or methodology development is a focus of resource

Exposure Change Prediction

Population of Concern: A focus of content

Population of Concern: ☒

populations at particular risk or vulnerability to climate change impacts

Low Socioeconomic Status, Workers

Resource Type: ☒

format or standard characteristic of resource

Research Article

Timescale: ☒

time period studied

Long-Term (>50 years)

Vulnerability/Impact Assessment: ☒

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content